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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,024	11/21/2003	Matthew G. Thorn	CS1757 0680	3206

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EXAMINER

LEE, RIP A

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/720,024

Applicant(s)

THORN ET AL.

Examiner

Rip A. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 18-31 is/are rejected.
- 7) ☒ Claim(s) 1, 9-18, 23, 27 and 29-31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>04-18-2005</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 4, 6, 8, and 20-22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 38-45 of copending Application No. 10/797,673. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons.

The present claims are drawn to a catalyst composition comprising at least one metallocene and at least one solid oxide chemically treated with an electron withdrawing anion. The metallocene may contain a bridging group bridging ligands ( $X^1$ ) and ( $X^2$ ). Claims of the copending application are drawn to a composition comprising at least one chemically treated solid oxide and at least one tightly bridged metallocene having a bridging group bridging ligands( $X^1$ ) and ( $X^2$ ). The instant claims read on the claims of the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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### ***Claim Objections***

3. Claims 1, 18, 23, 27, and 29-31 objected to because of the following informalities: The claims describe a substituent that is an "inorganic group" and an "organometallic group." Such a description is not defined by the claim or specification, and it encompasses an infinite combination of groups. As such, the subject matter of the claims is unclear. Appropriate correction is required.

4. Claim 16 is objected to because of the following informalities: Please correct the following nomenclature errors.

page 58, line 4	insert "phenyl" in " <i>tetrakis</i> (2,4-dimethyl)"
page 59, lines 12, 15, 18	replace " <i>tetrakis</i> (phenyl)" with "tetraphenyl"
page 60, lines 3, 6, 10	

5. Claim 17 is objected to because of the following informalities: It is not clear how the recited clay materials constitute a co-catalyst since they are inert materials. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 27, 28, and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are drawn to catalyst compositions that consist essentially of metallocene and support. There is no co-activator/co-catalyst component, and therefore, the claimed compositions are not catalysts. The subject matter of the claims is indefinite because it is inconsistent with the accepted definition of catalyst.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

9. Claims 1, 2, 4-8, 18, and 19-31 are rejected under 35 U.S.C. 102(b) as being anticipated by McDaniel *et al.* (U.S. 6,376,415).

McDaniel *et al.* teaches a catalyst composition comprised of metallocene, chemically treated solid oxide (molybdenum and halide), and organoaluminum co-activator (claim 1). The ratio of organoaluminum to solid oxide lies in the range of 3:1 to 1:100 (claim 7). A representative compound is EtInd<sub>2</sub>ZrMe<sub>2</sub> (col. 5, line 25). The corresponding dimethyl complexes of metallocenes shown in col. 4-10 (*i.e.*, Cp<sub>2</sub>ZrMe<sub>2</sub>, Cp<sub>2</sub>HfMe<sub>2</sub>, Cp\*<sub>2</sub>ZrMe<sub>2</sub>, Ind<sub>2</sub>ZrMe<sub>2</sub>, *etc.*) and methyl derivatives of “piano-stool” compounds as per col. 7 (*i.e.*, IndTiMe(OEt)<sub>2</sub>), are also well within the teachings of the patent since ancillary ligands (X<sup>3</sup>) and (X<sup>4</sup>) are defined as aliphatic group (claim 1). Catalysts are used for polymerization of olefins.

10. Claims 1, 2, 4-8, 18, and 19-31 are rejected under 35 U.S.C. 102(b) as being anticipated by McDaniel *et al.* (U.S. 6,395,666).

McDaniel *et al.* teaches a catalyst composition comprised of metallocene, chemically treated solid oxide (fluorided silica/alumina), and organoaluminum co-activator (claim 1). The ratio of organoaluminum to solid oxide lies in the range of 3:1 to 1:100 (claim 16). A representative compound is EtInd<sub>2</sub>ZrMe<sub>2</sub> (col. 5, line 25). The corresponding dimethyl complexes of metallocenes shown in col. 4-10 (*i.e.*, Cp<sub>2</sub>ZrMe<sub>2</sub>, Cp<sub>2</sub>HfMe<sub>2</sub>, Cp\*<sub>2</sub>ZrMe<sub>2</sub>, Ind<sub>2</sub>ZrMe<sub>2</sub>, *etc.*) and methyl derivatives of “piano-stool” compounds as per col. 8 (*i.e.*,

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IndTiMe(OEt)<sub>2</sub>), are also well within the teachings of the patent since ancillary ligands (X<sup>3</sup>) and (X<sup>4</sup>) are defined as aliphatic group (claim 1). Catalysts are used for polymerization of olefins.

11. Claims 1-8, 20-23, 26, 29-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Hawley *et al.* (U.S. 6,667,274).

Hawley *et al.* teaches a catalyst composition comprised of metallocene, chemically treated solid oxide (chlorided zinc-containing silica/alumina), and organoaluminum co-activator (claims 1 and 6). The ratio of organoaluminum to solid oxide lies in the range of 5:1 to 1:1000 (col. 13, line 26). A representative compound is EtInd<sub>2</sub>ZrMe<sub>2</sub> (col. 9, line 30). The corresponding dimethyl complexes of metallocenes shown in col. 9-12 and those metallocenes incorporated by reference in col. 8, line 65 – col. 9, line 6, are also well within the teachings of the patent since ancillary ligands (X<sup>3</sup>) and (X<sup>4</sup>) are defined as aliphatic group (col. 2, line 41). Catalysts are used for polymerization of olefins.

12. Claims 1, 4, 18, 19, 21, 22, 23, and 25-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Ahn *et al.* (*Organometallics*, 2002).

Ahn *et al.* discloses catalyst compositions comprising Cp<sub>2</sub>ZrMe<sub>2</sub>, Cp\*<sub>2</sub>ZrMe<sub>2</sub>, or CpTiMe<sub>3</sub> deposited on sulfated alumina. Kinetic and mechanistic studies of alpha olefin homopolymerization is reported (abstract).

13. Claims 9-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to overcome claim objections (claim 17) and if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claims are drawn to inventive catalyst compositions further comprising aluminoxane/borate based co-activators. It is the object of the inventions of the closest prior art, *supra*, to obviate use of such activators. Thus, the subject matter of claims 9-17 are not taught or suggested by these references.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

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September 28, 2005



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